Mercury Digital Graflok Back Instructions

Kit Contents

Leaf Valeo digital back
Mercury M645 to Graflok 23 adapter
Mercury M645 Valeo Lockdown Kit
Mercury Valeo CF Drive Unit
Sync cable
4GB Compact Flash Card pre-formatted for Valeo use
Adhesive Velcro strip

Note: The standard Mercury CF Drive Unit comes with a built-in firewire cable. The upgraded Deluxe CF Drive Unit requires an external firewire cable (6-pin to 6-pin; i.e., Firewire 400). This cable is not included. You must decide what length of cable you wish to use. Special thin and flexible cables are recommended. Occasionally, cables with particularly fat connectors need one of them trimmed or ground (just the plastic bulge) slightly so it can fit into the recessed Leaf Valeo port.

Powering the Digital Back

You will need to supply DC power to the DC input port on the CF Drive Unit to power the digital back. This battery can be between 7v and 12v. The recommended battery type is an inexpensive 12v Lithium Ion universal battery pack, commonly sold on Ebay. These come in various capacities, but most are made in China and are quite inexpensive. Common variants look like blue or black rectangles. They have a built in on-off switch, protection circuitry for charging, and either a built in 2.1mm DC power cable (blue version) or a 2.1mm DC power port and included short cable (black versions). They also come with a small charger. The “6800 mAh” versions of these batteries represent a good tradeoff between battery life, size of the pack, and expense. We recommend getting one or two of this size.

You should use the included Velcro strip to apply to the front side of the CF Drive Unit and one side of the battery. The two can remain Velcroed together indefinitely, or you can swap out one battery for another if you own multiple.

These batteries generally require 10-15 hours to fully recharge using the included charger. If you require faster charging, you can purchase a Tenergy Universal Charger.

Using the Digital Back

1. Mount the digital back on your Graflok 23 Back Adapter as you would any other back.

2. Connect the included sync cable to the left hand side of the Valeo back—in its mini port. Connect the other side of the sync cable to the flash sync port on your lens/shutter. If your lens/shutter has multiple flash sync speeds, set it to X or FS.
3. Insert the 4GB CF card into the CF Drive Unit
4. Connect the CF Drive Unit to the Firewire port on the digital back.
5. Connect your battery's DC power cable to the DC Input port on the CF Drive Unit.
6. Clip the CF Drive Unit to your belt, pocket, etc. Alternately, you can mount it on the camera or tripod.
7. Switch on the battery's rocker switch to turn on the digital back. Switch it off to turn it off.
8. The back requires about eight seconds to boot up. During that time it's indicator light will illuminate orange. When it is ready to shoot, it will beep and turn green.
9. Triggering your shutter will cause the back to take an exposure. The back will then automatically write the photo to the CF card. The LED will flash during this process.
10. Another photo can be taken as soon as the LED turns green, even if it is still flashing (i.e., still writing the file to card).

LED Status

Orange, steady: Back is either booting up or has encountered an error. Errors are generally accompanied by a long beep. The most common error is low amperage or voltage from your battery. If this happens, either cycle the back off and on, or charge the battery.

Orange, blinking: Back is transferring data to the CF card and is not ready to shoot.

Green, steady: Back is ready to shoot.

Green, blinking: Back is transferring data to the CF card, but is ready to shoot (i.e., image buffer isn't full).

Notes on Use

When mounting and dismounting the back, it is best to connect and disconnect it on the lens/shutter side. This connector is more robust than the mini connector on the back itself; it is better not to unduly stress this jack.

To use this back for flash photography, connect the flash to the flash sync port on the back itself (it is a standard PC sync port, above the mini sync port).

Do not disconnect or switch off power to the back while the LED is flashing (writing data). If there is a steady LED, it is fine to switch off the back at any time.

The back uses a fair amount of power when on (it has a lot of hungry electronics, including its very large CCD sensor), and should therefore be switched off when not shooting for a length of time. One battery will probably yield between 2.5-3.5 hours of continuous running.

File Format

This back records files in Leaf's proprietary RAW file format: .MOS This format can be read by most commercial and open source RAW processors, including Capture One, Lightroom, and Raw Therapee (our choice: it is free, cross-platform, and very powerful).

CF Card

The CF Card contains the configuration information for your back. You should *never* delete this data or Format this card, or you may find that your back will no longer function properly. You can, however, copy these files off the card and copy them back again in case of a mistake. The proper file system format for the card is FAT 16, and the proper volume name is LEAF_DM.

By default, this back is only capable of addressing 4GB of space on the CF card. It doesn't really make sense to use a larger than 4GB card.

To use larger cards, with FAT 32, you need to utilize Leaf Capture 8.x (not 11.x) while attached to a CF card, and then “Prepare For Portable.” You can read the Leaf Capture User Guide to learn more about this, but we think it's more trouble than it's worth. 4GB is plenty of space, and if you need more, just get a second 4GB card, format it FAT 16, and duplicate the files from the first card.

You can, of course, freely delete the images you take from the card; ***just don't delete the config files or format the card.***

Controlling the Back with an iPaq

Valeo backs can be optionally controlled with an HP iPaq PDA (Personal Digital Assistant, the precursor to the smart phone). Virtually any functioning iPaq will work as long as it is running Windows Mobile 2003 or Windows Mobile 5, and has built-in bluetooth. You can download the DP67 Installer for free from Phase One (current owner of Leaf) here: ftp://ftp.phaseone.com/Support/Download/Software/Leaf/Legacy%20LC%20Software/iPac/Leaf%20DP-67%20096/

Unzip the file, copy it to an SD card, transfer it to the iPaq, and run the program. This will install DP67 on your iPaq.

Turn on your iPaq's bluetooth, then run DP67. The first time you run it you will need to select “bluetooth” as your connection method and search for backs. Once it finds your back, select it,

and then enter the following PIN when prompted: 1234. *Always* enter those same digits for both your “old pin” and “new pin.” The pin is not recoverable, so you must always enter the factory default or risk locking yourself and future owners out of bluetooth connection forever.

Download the read the instructions to understand how to control the back using this app.

It is also possible to connect your back to an iPaq using a special, proprietary cable, also called a “DP-67.” This cable is very rare, but it does allow you to bypass bluetooth (just select “serial” instead of “bluetooth” in the app's connection screen).

Also note that when you make changes to the back with this interface (ISO, folder structure, file name, etc.), it will write that config info to the CF card. Thus those settings will persist even when you aren't connected to DP67, so be mindful of what settings you are using when you “sign off.”

The Valeo does not need to be connected to an iPaq in order to take photos and write them to CF card. The iPaq is only needed if you wish to change camera settings or monitor your shots as you shoot them.

Using the Back Tethered to a Computer

This digital back can be tethered to any Mac running OSX 10.4 or above, as long as it has a Firewire 400 Port. Recent Macs can be used via the Apple Thunderbolt to Firewire adapter plus a Firewire 800 male to Firewire 400 female adapter/cable.

Older Macs (OSX 10.5 and lower) will need to use Leaf Capture 8.x to connect to the back. Newer Macs can use Leaf Capture 11. Download it here:
http://www.mamiyaleaf.com/downloads.html

You *must* run the **32 bit version** of Leaf Capture 11. The 64 bit version will not recognize this back. OSX 10.6 through 10.10 (“Yosemite”) install the software without any issues. OSX 10.11 (“El Capitan”) and up generate an installation error related to (a) Filevault (disk encryption) if you have it activated, and (b) SIP (System Integrity Protection). First turn off Filevault (note that this will take awhile to decrypt your hard drive; then restart). Then perform the workaround for SIP. This is the procedure (note: copy and paste the code directly to avoid making mistakes):

Enter in recovery mode (hold down Cmd -R at bootup)
- In the menu, choose the Command line
- Type in :

```
csrutil disable
```

- reboot and login normally

- Open a command line
- Type in:

```
cd /
sudo chmod +w Applications
sudo chown root:wheel Applications
```

Then install Leaf capture.

After Leaf Capture has been successfully installed, you should restore the SIP. Repeat the same procedure as before, but but with the command :

```
csrutil enable
```

Note that once the software is installed, you can re-enable FileVault; the software only has trouble installing, not running.

The back will turn on automatically when plugged into the firewire port. Once tethered, it operates as normal, except that you can control its parameters from the software itself, and images are transferred to your hard drive rather than the CF card (the CF Drive unit should not be connected at the same time as computer tethering).

Live View (i.e., video preview with shutter open) is possible only if you own a Leaf Live View Dongle. When plugged into a USB port, this enables the Live View function in Leaf Capture.